APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/994,443	11/27/2001	Brian D. Herr	POU920010125US1	9512

				EXAMINER
23334	7590	09/30/2004		PEUGH, BRIAN R

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ART UNIT	PAPER NUMBER
2187	

DATE MAILED: 09/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>08 July 2004</u>.

2a) ☒ This action is **FINAL.**   2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-22</u> is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☒ Claim(s) <u>7,14 and 22</u> is/are allowed.

6) ☐ Claim(s) <u>1-6,8-13,15-21</u> is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a) ☐ All   b) ☐ Some * c) ☐ None of:

   1. ☐ Certified copies of the priority documents have been received.

   2. ☐ Certified copies of the priority documents have been received in Application No. _____.

   3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage
   application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
   Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

This Office Action is in response to applicant's communication filed July 8, 2004 in response to PTO Office Action dated April 8, 2004. The applicant's remarks and amendment to the specification and/or claims were considered with the results that follow.

Claims 1-22 have been presented for examination in this application. In response to the last Office Action, claims 1-22 have been amended.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-6, 8-13, and 15-21 are rejected under 35 U.S.C. 102(e) as being anticipated by Goldstein et al. (US# 6,247,105).

Regarding claim 1, Goldstein et al. teaches implementing memory allocation in a **time sensitive data communications** system according to the computer system in which the invention is implemented, where the computer system includes I/O devices such as serial and parallel communication ports, network interfaces, etc. (Fig. 3; col. 9,

lines 48-59). Allocatable memory space is divided into multiple **base memory blocks**, where each of these memory blocks comprises a number of pages, and each page comprises a number of buckets. A bucket comprises a unit of memory space that may be allocated **(pinned)** (col. 4, lines 38-42 & 46-51; col. 5, lines 12-17). Figures 2 and 4 illustrate the memory allocation system of Goldstein et al. The **base memory block** refers to a memory page that is selected, which contains the optimum number of free buckets according to a memory request. This means that a request for a section of memory is made according to the desired bucket size **(specification of buffer size)** (col. 10, lines 40-45). The **memory buffer** as claimed refers to a size of memory space to be used for a process, which may or may not be greater than the size of a single bucket allocated from memory. At step 404, the system of Goldstein et al. **determines whether a sufficient amount of memory** has been allocated for the request (col. 10, lines 46-54), in that it is determined whether the allocated bucket is large enough to satisfy the memory request according to the request's size. If additional memory space is required, another bucket of the **same size** as the bucket already allocated is **additionally allocated** from the same memory page (col. 10, lines 53-65), or from an additional memory page (col. 10, line 66 – col. 11, line 3). Goldstein et al. **does not teach that the additionally allocated memory must be contiguous** with the previously allocated memory.

Regarding claims 2, 9, and 17, Goldstein et al. teaches that all memory blocks, and thus pages and buckets **(buffers)**, are stored in the memory space. The memory

space is run by the memory space allocator (**kernel memory allocation module**) and prevents other processes from using or modifying the memory space (**pinning**) (col. 4, lines 38-42).

Regarding claims 3, 11, and 18, free (**additional pinned kernel memory blocks**) buckets for allocation are linked according to a **linked list** found in the descriptor block of the memory page (col. 7, lines 52-60).

Regarding claims 4, 12, and 19, each memory page contains buckets of a certain size according to the memory block to which the page is allocated. Each bucket within that block are of the **same predetermined size** (Figure 1; col. 5, lines 12-18).

Regarding claims 5, 13, and 20, Goldstein et al. teaches that the invention may be implemented for use in the general purpose computer system of Figure 3, or that the invention may be implemented to function in any type of computer system or programming or processing environment (col. 9, lines 29-30; col. 10, lines 10-12), which read upon the **mass storage data server application processing module** as claimed.

Regarding claims 6, 15, and 21, the claim limitations do not state or require that the first memory buffer is still allocated to the base memory block and additional memory block, in that the subsequent *request* immediately follows the original *request*. Thus, these two blocks may have been released for future memory allocation after their

original purpose had been satisfied and are currently empty and free for allocation. Also,

the allocation of a second additional memory block (bucket) as recited in claim 6 is

merely an extension of the original allocation of a first additional memory block as

outlined above in regards to claim 1. The invention of Goldstein et al. teaches that if an

additional bucket is not enough to satisfy the memory request, additional buckets may

be allocated for the memory request according to the loop description of Figure 4 (steps

403-405). Therefore, Goldstein et al. teaches that additional buckets may be allocated

in accordance to the size of the requested buffer, or memory request.

Regarding claim 8, Goldstein et al. teaches implementing memory allocation in a

time sensitive data communications system according to the computer system in

which the invention is implemented, where the computer system includes I/O devices

such as serial and parallel communication ports, network interfaces, etc. (Fig. 3; col. 9,

lines 48-59). The operating system **kernel (memory allocation module)** reserves the

kernel memory area for exclusive use by the kernel (col. 4, lines 38-42). Allocatable

memory space is divided into multiple **base memory blocks,** where each of these

memory blocks comprises a number of pages, and each page comprises a number of

buckets. A bucket comprises a unit of memory space that may be allocated (col. 4,

lines 38-42 & 46-51; col. 5, lines 12-17). Figures 2 and 4 illustrate the memory

allocation system of Goldstein et al. The **base memory block** refers to a memory page

that is selected, which contains the optimum number of free buckets according to a

memory request. This means that a request for a section of memory is made according

to the desired bucket size (**specification of buffer size**) (col. 10, lines 40-45). The

memory buffer as claimed refers to a size of memory space to be used for a process, which may or may not be greater than the size of a single bucket allocated from memory. At step 404, the system of Goldstein et al. **determines whether a sufficient amount of memory** has been allocated for the request (col. 10, lines 46-54), in that it is determined whether the allocated bucket is large enough to satisfy the memory request according to the request's size. If additional memory space is required, another bucket of the **same size** as the bucket already allocated is **additionally allocated** from the same memory page (col. 10, lines 53-65), or from an additional memory page (col. 10, line 66 – col. 11, line 3). Goldstein et al. **does not teach that the additionally allocated memory must be contiguous** with the previously allocated memory.

Regarding claim 10, and as seen in Figure 2, the allocatable free buckets are **not found contiguously** (col. 7, lines 60-67).

Regarding claim 16, Goldstein et al. teaches implementing memory allocation in a **time sensitive data communications** system according to the computer system in which the invention is implemented, where the computer system includes I/O devices such as serial and parallel communication ports, network interfaces, etc. (Fig. 3; col. 9, lines 48-59). The operating system kernel reserves the **kernel memory** area for exclusive use by the kernel (col. 4, lines 38-42). As is notoriously well known in the art, the kernel is comprised of **computer instructions** that provide the backbone of an operating system, all of which are inherently **stored on a storage medium**, such as a

hard disk drive. Allocatable memory space is divided into multiple **base memory blocks**, where each of these memory blocks comprises a number of pages, and each page comprises a number of buckets. A bucket comprises a unit of memory space that may be allocated (col. 4, lines 38-42 & 46-51; col. 5, lines 12-17). Figures 2 and 4 illustrate the memory allocation system of Goldstein et al. The **base memory block** refers to a memory page that is selected, which contains the optimum number of free buckets according to a memory request. This means that a request for a section of memory is made according to the desired bucket size (**specification of buffer size**) (col. 10, lines 40-45). The **memory buffer** as claimed refers to a size of memory space to be used for a process, which may or may not be greater than the size of a single bucket allocated from memory. At step 404, the system of Goldstein et al. **determines whether a sufficient amount of memory** has been allocated for the request (col. 10, lines 46-54), in that it is determined whether the allocated bucket is large enough to satisfy the memory request according to the request's size. If additional memory space is required, another bucket of the **same size** as the bucket already allocated is **additionally allocated** from the same memory page (col. 10, lines 53-65), or from an additional memory page (col. 10, line 66 – col. 11, line 3). Goldstein et al. **does not teach that the additionally allocated memory must be contiguous** with the previously allocated memory.

Allowable Subject Matter

Claims 7, 14, and 22 are allowable over the prior art of record.

Response to Arguments

Applicant's arguments filed July 8, 2004 have been fully considered but they are

not persuasive.

Applicant's arguments regarding claim 1 and the Goldstein et al. reference,

beginning on page 14 of the arguments filed July 8, 2004, recite references to the

Goldstein et al. use of memory page swapping in and out of pinned kernel memory.

Applicant has argued that Goldstein et al.'s use of paging does not correspond to the

claimed subject matter of the present invention. The Examiner would like to point out

that Applicant's claim 1, as well as subsequent claims, do not preclude the use of

memory paging, in that the claims do not include language prohibiting memory paging

for pinned kernel memory from being used.

Applicant's subsequent arguments regarding claims 2-6, 8-13, and 15-21 are

based upon Applicant's assertion that the paging system of Goldstein et al. does not

read upon the claimed subject matter, and thus are not persuasive.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in

this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37

CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Brian R. Peugh whose telephone number is 703-306-

5843. The examiner can normally be reached on Monday-Thursday from 7:00am to

4:30pm. The examiner can also be reached on alternate Friday's from 7:00am to

4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Donald Sparks, can be reached on (703) 308-1756. The fax phone number

for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or

proceeding should be directed to the receptionist whose telephone number is 703-305-

9600.

DS/BRP

September 20, 2004

Donald Sparks
Supervisory Patent Examiner
Art Unit 2187